Alternative Financing of DER/CHP Projects

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DER/CHP makes sense technically… Now what?

- First, get management on board
  - Solicit FEMP, other expert support in project analysis
  - Demonstrate system life-cycle cost effectiveness
- Next, figure out how to contract and pay for the project

FEMP and Other Expert Support

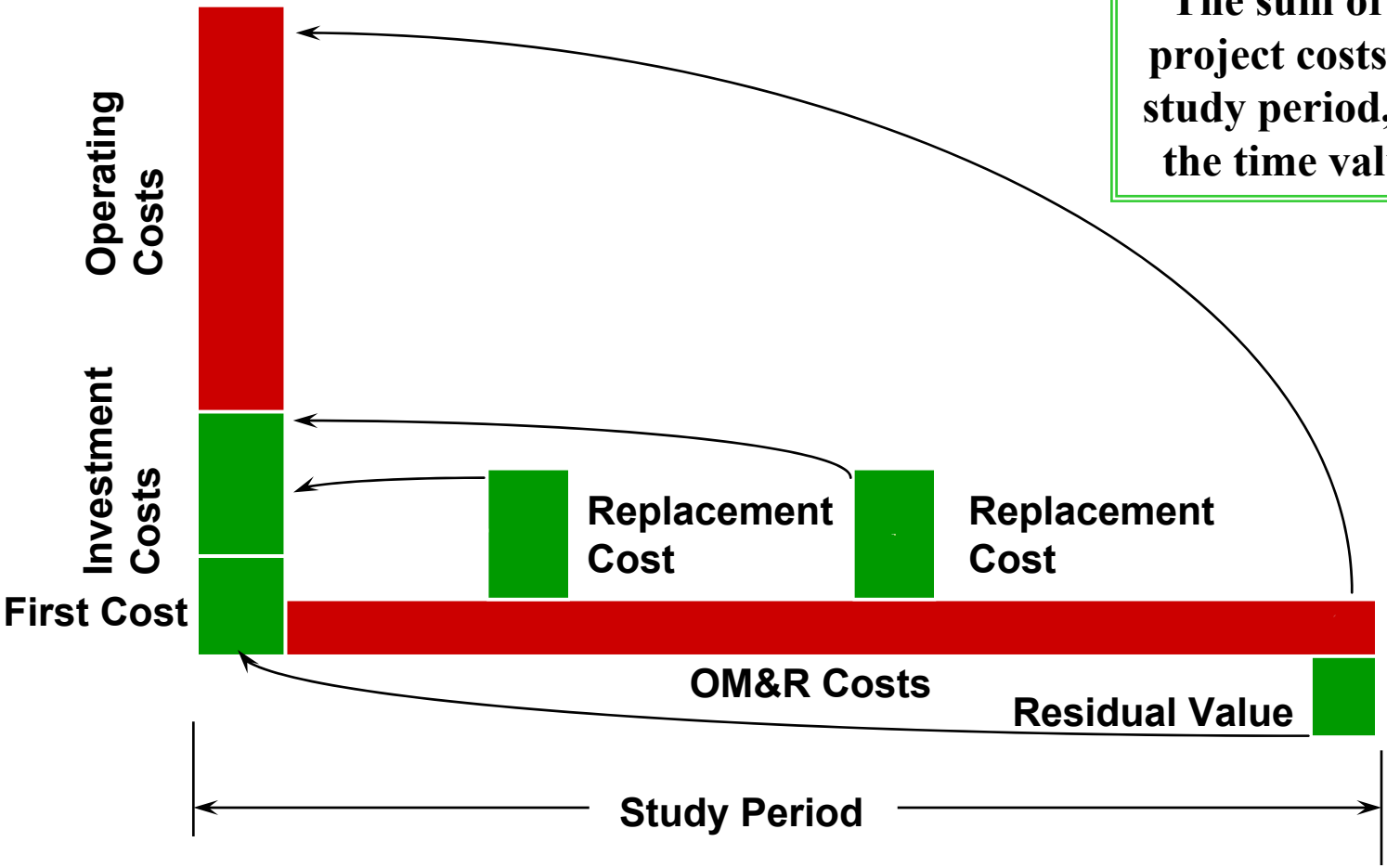
- FEMP may be able to assist you in identifying and evaluating DER/CHP project opportunities with
  - Scoping and feasibility studies
  - Free CHP screenings
  - Specification development and design reviews
  - System monitoring and performance verification
- Apply for assistance through your DOE RO
  http://www.eere.energy.gov/femp/technologies/derchp_fempassistance.cfm
- Regional CHP Application Centers may also offer support
  http://uschpa.admgt.com/regional.htm#racs

Demonstrate System Economics

- Life-cycle costing is a federal requirement
  - Provisions set forth in Code of Federal Regulations, Title 10, Part 436, Subpart a (10 CFR 436)
  - Executive Order 13123 stipulates implementation of "life-cycle cost effective" projects
- Economics can improve decisions
  - Capture costs and benefits over the project lifetime
  - Evaluate cost/performance tradeoffs
  - Prioritize multiple energy efficiency projects

Typical Life-Cycle Costing

The sum of all relevant project costs over a given study period, adjusted for the time value of money



In Summary

A Project is Cost-Effective If…

- Life-cycle costs are lower than alternative (10CFR436.18.c1)
- Net Savings > 0 (10CFR436.18.c2)
- Savings-to-Investment Ratio > 1 (10CFR436.18.c3)
- Adjusted Internal Rate of Return (AIRR) > discount rate (10CFR436.18.c4)
- Payback period << life of equipment or building (10CFR436.18.d)
- Payback period < 10 years (EPAct 1992)

Contract and Pay For the Project

Consider:

1. Incentives, such as rebates and grants
2. Agency-appropriated funds
3. Alternative financing methods

1. Incentives

- Includes Federal, State/Local, and Utility grants, rebates, and buy-downs
- Can help make a project cost-effective by reducing first cost or operating expenses
- Probably won't pay for whole project, but will help you sell it to your management

State and Utility Incentives

- Example: California
  - Lesser of $4.50/W or 50% of project cost for PV
  - Lesser of $2.50/W or 40% of project cost FCs (NRF)
  - Lesser of $1.00/W or 30% of project cost for MTs, ICEs, small GTs using NRF
  - Lesser of $1.50/W or 40% of project cost for above technologies using renewable fuels
- For more information:
  - http://www.dsireusa.org
  - http://www.uschpa.org

Project Example

- U.S. Postal Service Marina Processing & Distribution Center, Inglewood, CA
  - $680k Rebate from LADWP
  - Saves 300 MWh/yr, $25k/yr and expected to shave up to 120 kW (10% of 1.2-MW peak)

2. Agency Appropriated Funding

PROS

- Familiar
- The funding represents the lowest "cost of money"
- The government retains all savings
- E.O. 13123 Sec. 301 directs agencies to request funds to implement E.O.

CONS

- Delays in government budget/funding process
- Energy program funds compete against other agency programs
- Funds may expire if not allocated during fiscal year
- Available funds may not be sufficient to meet goals
- Requires project oversight and integration
- No guaranteed outcome

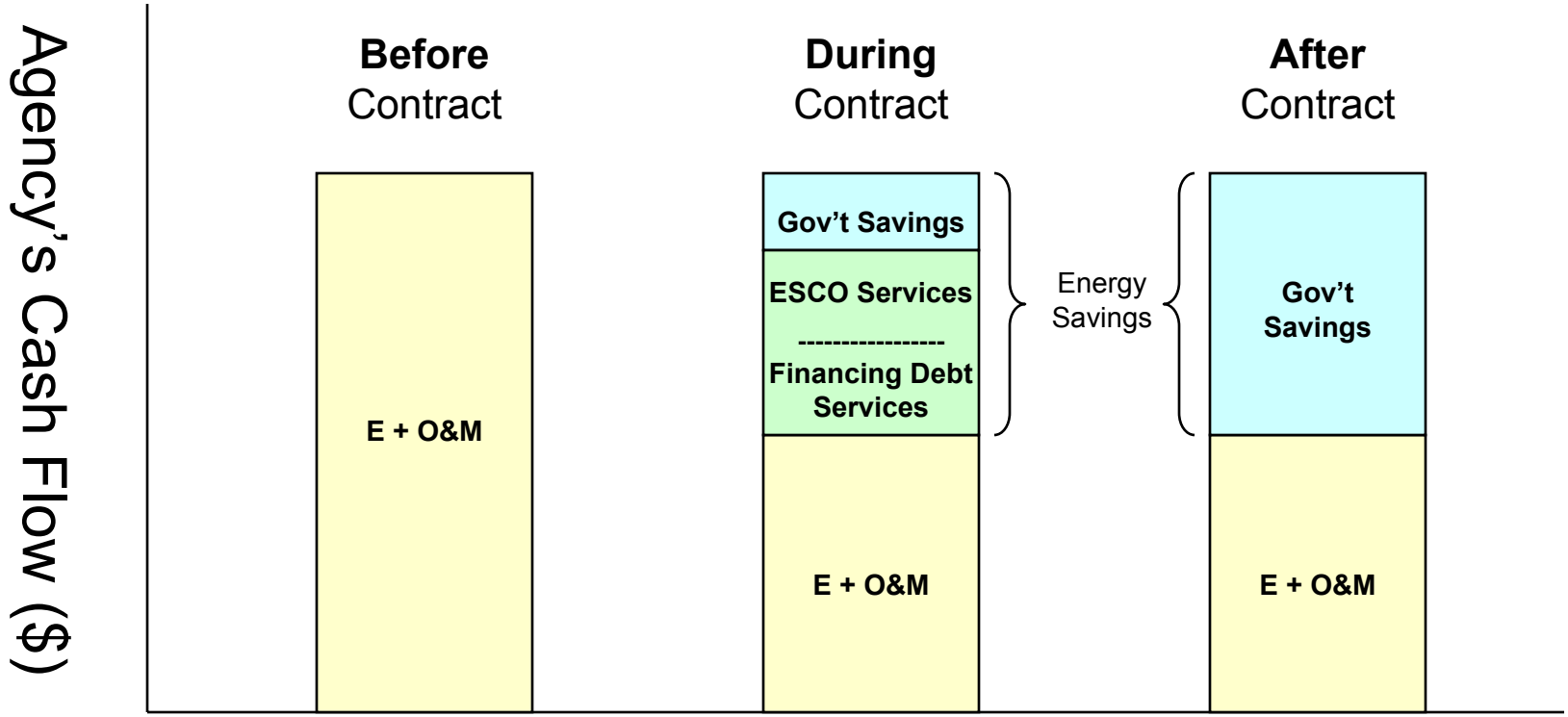
3. Alternative Financing Methods

- Utility Energy Service Contract (UESC)
  - Single (established) source to regulated utility offering a program
- Energy Savings Performance Contract (ESPC)
  - DOD, DOE have awarded IDIQ contracts, so single source is an option for any agency
- Enhanced Use Lease (EUL)

What is Alternative Financing?

- A contracting method
- A Federal and private-sector partnership
- The private-sector entity provides up-front funding for the cost of designing, purchasing and installing new energy-efficient equipment
- The government repays the entity over the life of the contract (payments usually from savings)
- Encouraged in EPAct ’92 and subsequent E.O.s
- Often lowest LCC (including interest) when compared to normal piecemeal project strung out over 2+ years

Reallocate the Government's Utility Bill



Source of Savings

- Efficiency improvements reduce energy use
- Self generation reduces utility usage
- Grants and rebates
- Energy related O&M savings (one-time or recurring, but no capital funds for ESPC)
- Value of reduced emissions (at least in LCC, could be real $$ in air quality mgt district)

ECM Opportunities

- Demand & conservation measures
- Renewables
- Cogeneration and on-site generation
- Energy/utility distribution systems
- Water and sewer conservation systems
- Rate analysis and process improvements

ESPC/UESC Services Offered

- Audit/feasibility studies (no-risk proposal)
- Engineering and design (detailed proposal)
- Equipment purchase & installation (design/build)
- Project management
- Financing
- Commissioning, measurement and verification
- Training
- Operations and maintenance
- Repair and replacement

How Can ESPC/UESC Help DER/CHP Projects?

- Bundled projects
  - Longer payback energy conservation measures (ECMs) can be included
- Use of RE DER and CHP encouraged in ESPC
- Includes O&M training
- Identifies repair & replacement strategies
- Includes performance guarantee

Technology Challenges

- Newer technologies still comparatively expensive
  - ➢ Long payback
- Lack of longterm O&M data and knowledge
  - ➢ Higher risk associated with cutting-edge technologies/systems

Key Issues To Consider in Choosing a Financing Option

- Availability
- Project size
- Operations & Maintenance
- Contract Term
- Guaranteed Savings
- Measurement & Verification

FEMP Publication: Choosing a Financing Vehicle

http://www.eere.energy.gov/femp/docs/choosing_financing_nov00.doc

IDIQ ESPC

PROS

- Already competitively selected, can sole source
- Guaranteed savings
- Up to 25 year term
- No risk survey and proposal
- Pre-negotiated caps
- No FedBizOpps solicitation required

CONS

- Can't directly apply federal grant monies
- "Buy-downs" more difficult
- Guaranteed savings and M&V can add cost

Utility Contracting (UESC)

PROS

- Established source
- Long-standing relationship with entity
- Flexibility – guarantee and M&V not required
- No rules about source of utility payments
- Payment through utility bill
- Regulatory oversight

CONS

- May not be available
- Procedure is not clearly defined in policy (10 year term limit)
- Close scrutiny of proposal required
- Guarantee and M&V may not be offered by utility
- Loss of initial competition
- Must address use of subsidiaries and subcontractor selection

Some Examples

- Twenty-nine Palms ESPC
  - 7 MW CHP and 1 MW PV
  - CHP payback helped pay for PV
- Naval Base Coronado ESPC
  - 120 kW MT CHP and 750 kW PV
- NIH Louis Stokes Laboratories (UESC w/ PEPCO)
  - 23 MW GT cogen plant

To Summarize

- 23 sites have alternatively financed CHP and/or other DE projects
  - 15 ESPCs (47 total installed MW)
    - GTs, MTs, ICEs, PV and Wind
    - DOD, VA, GSA, FDA (w/ GSA), USDA
    - CA, GA, HI, IA, MA, MD, ME, NC, RI, SC
  - 5 UESCs (53 total installed MW)
    - GTs and one FC project
    - DOD, GSA, USPS, HHS-NIH
    - AK, CA, DC, IL, MD, TN
  - 3 EULs (all VA; GT, ICE; TN, IL; 16.5 MW installed)

Points of Contact

- DOE Regional Support Offices
  - Seattle – Scott Wolf (206) 553-2405
  - Atlanta – Doug Culbreth (919) 782-5657
  - Denver – Sharon Gill (303) 275-4846
  - Chicago – Gordon Drawer (312) 886-8572
  - Philadelphia – Tom Hattery (215) 370-1362
  - Boston – David Mark (617) 565-9725
- Check the GSA Area-wide Listing:
  - See www.gsa.gov → Energy Center of Expertise Library

For More Information

- Visit the FEMP Web Site:
  - **http://www.eere.energy.gov/femp**